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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/532,951	Applicant(s) TZSCHOPPE ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's preliminary amendment filed on April 27, 2005, which has been entered into the file.
- By this amendment, the applicant has canceled claims 1-21 and has newly added claims 22-41. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). *The numbering of the claims is wrong with a duplication of claim 23.*

Misnumbered claims 22-41 been renumbered 22-42.

- Claims 22-42 remain pending in this application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 22-42 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The specification and the claims fail to teach how could the three dimensional image be seen by simply moving the position of the diffusing layer. The essential criterions for establishing three dimensional image viewing is by providing left eye perspective image and right eye perspective image and by making the left eye perspective image entering left eye and the right eye perspective image entering right eye of an observer **respectively**. The claims and specification fail disclose how could a filter (without explicitly states the structure and function) and a diffusing layer is capable of achieving such. With regard to claim 42, the specification and the claims fail to teach how could the three-dimensional image viewing ever be created by simply having a diffusing layer. The image light directivity (i.e. to right eye and left eye respectively) will not be established by moving a diffusing layer around.

With regard to claim 37, it is impossible to create three-dimensional image viewing for the display device and the filter array has a distance that is zero. The directivity of the light needed for three-dimensional viewing certainly cannot be created.

The claims at this juncture are not enabling the claims of switching between two-dimensional mode and three-dimensional mode.

Claim Objections

3. Claims 22-42 are objected to because of the following informalities:

(1). The various phrases “before” and “behind” referring the relative positions of the various elements such as filter array, diffusing layer, and transmissive image display device are confusing and indefinite since it is not clear what is considered to be “before” and what is considered to be “behind”. What is the standard direction used here to specify such “behind” and before” phrases? One possible way of resolving this issue is to use “image viewing side” and the “illuminating device side” to more definitely describe the relative positions of the various elements.

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(2). The phrase “optionally” recited in claim 27, is confusing and indefinite since it is not clear if the paragraph following the term “optionally” is or is not part of the limitations of the claim.

(3). The phrase “permanently diffusing” recited in claim 32, is confusing and indefinite since it is not clear what is considering to be “permanently” diffusing? Being "permanently" as compared to what?

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 22, 40 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Eichenlaub (PN. 6,157,424).**

Eichenlaub teaches a *2D/3D image display* serves as the *display with selectable three-dimensional visible or two-dimensional modes* wherein the display comprises *lamps* (102, Figure 14) serve the *illuminating device* for emitting light distribute over an area, *light barriers* (104) serves as the *filter array* arranged before or at the image side of the illuminating device to impart a *mask pattern or structure* to the emitted light for create *directivity* for the light, a *diffuser* (106) serves as the *diffusing layer* arranged before or at image side of the filter array or barriers and a *transmissive image display device* (26, as shown in Figure 7) for forming images intended to be displayed. Eichenlaub teaches that the *distance* between the *light barriers* or the *filter array (or the illuminating device or light source as for claim 42)* and the *diffuser* can be varied, and when the diffuser is at the *first position* (108) the diffusing effect cancels the light directivity caused by the light barrier or filter array to create *two-dimensional*

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viewing mode and when the diffuser is at the *second position* which is *near or against the illumination device* with the light barriers, the diffuser appears to be *transparent* to the emitted light from the illuminating device and the filter array does not cancel the directivity of the emitted light caused by the filter array to provide a *three-dimensional viewing mode*, (please see Figures 7 and 14, column 12, lines 11-51).

With regard to claim 40, **Eichenlaub** teaches that magnetic coils can be used to accomplish the movement between first and second position, (please see column 12 lines 25-31), wherein magnetic coils are essentially a solenoid.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 23-26, 30, 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Eichenlaub in view of the patent issued to Nakayama et al (PN. 5,831,765).**

The display with selective three-dimensional visible and two-dimensional mode taught by Eichenlaub as described for claim 22 above has met all the limitations of the claims.

With regard to the feature concerning the filter array or the light barriers being supported by a transparent substrate, (as recited in various claims), this reference does not teach such explicitly, however such feature has to be implicitly met since the black, opaque barriers (104) cannot be present by itself and needed to be supported by certain supporting substrate. **Nakayama et al** in the same field of

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endeavor teaches a two-dimensional/three-dimensional compatible type image wherein a light separating device or barrier (Figure 2) having opaque and transparent pattern supported by a transparent glass substrate (113, please see column 7, lines 38-40) is used. **Nakayama** et al also teaches that by changing the distance between the barrier (2, Figures 11 and 12) and the diffuser (5) a switching between 2D mode and 3D image viewing mode can be achieved. It would then have been obvious to one skilled in the art to apply the teachings of **Nakayama** et al to make the light barrier or the filter array explicitly having patterned light absorbing or black material on light transparent substrate for the benefit of providing an explicitly way of making such barriers and for the benefit of making the barrier a separate element from the light source or lamps to create different arrangement designs to fit different application requirements.

With regard to claims 23-25, Eichenlaub teaches that the three-dimensional mode and two-dimensional mode can be switched by varying the distance between the diffuser and light source or the filter array, (please see Figure 14). This variation in distance or change in positions can be achieved either by *moving the diffuser* (106) from a position against the light source or light emitting device for 3D mode to a position (108) *away* from the light emitting device as shown in Figure 14 for 2D mode, or by moving the light emitting device with the light barriers, (please see column 12 lines 37-46). Eichenlaub teaches that the light emitting source is integrally formed with filter array or the light barriers so by moving the light emitting source, the distance between the filter array and the diffuser could be changed. It however does not teach explicitly to move the filter array or the light barriers only. **Nakayama** et al teaches the barrier or the filter array (2, Figures 11-12)) can be formed as separated element from the light emitting device so that the barrier or the filter array, formed on a transparent substrate, (please see the explicit demonstration as in Figures 13 and 14), can be moved between different positions for switching between the 3D mode (Figure 12) and 2D mode (Figure 11). It would then have been obvious to one skilled in the art to modify the display of Eichenlaub for making the light barriers separated element from the light emitting device or lamps for the benefit of creating more options for facilitating the switching

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between 3D and 2D modes. Eichenlaub teaches that the diffuser (28, Figure 7) can be placed at light emitting side of the transmissive image display device, (26, Figure 7), but it does not teach explicitly that the diffuser may also be placed at the image viewing side of the display device. Nakayama et al teaches that the 2D/3D compatible image display can have the diffuser (5) either placed at the image side of the display, (please see Figures 11-12) or at the light emission side of the display device (106 as in Figure 2). It would then have been obvious to one skilled in the art to apply the teachings of Nakayama et al to modify the arrangement of Eichenlaub to make the diffuser layer at image viewing side of the display device or even be part of the liquid crystal display panel, (as shown in Figure 15 and 16) for implicitly also provide antiglare effect to the display panel.

With regard to claims 30 and 32, Eichenlaub teaches that the diffuser is a variable diffuser wherein the diffusion state can be varied. But it does not teach explicitly that the diffuser may also be permanent diffuser such as diffusing film or ground glass plate. Nakayama et al teaches that the diffuser may be formed by formed by diffusing film or ground glass plate, (please see column 11, lines 5-17). It would then having obvious to one skilled in the art to make the diffuser a simple steady diffuser such as diffusing film or ground glass plate for the benefit of reducing the complexity of the display device and cutting cost.

With regard to claim 34, Eichenlaub teaches the image display device is a liquid crystal display device. Nakayama et al also teaches that the display device is a liquid crystal display device with front polarizer layer, (please see Figures 2 and 15) and the diffuser may either be at the light source side or the image viewing side with diffuser be within the LCD display. Although this reference does not teach explicitly to include a second diffuser to function as antiglare layer, however to provide antiglare sheet at front surface of the display device is common practice in the art for improving the image quality.

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8. **Claims 27-29, 31, 33, 35-39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Eichenlaub in view of the patent issued to Inoguchi et al (PN. 6,061,179).**

The display with selective three dimensional visible and two dimensional mode taught by Eichenlaub as described for claim 22 above has met all the limitations of the claims.

With regard to the feature concerning the filter array or the light barriers being supported by a transparent substrate, (as recited in various claims), this reference does not teach such explicitly, however such feature has to be implicitly met since the black, opaque barriers (104) cannot be present by itself and needed to be supported by certain supporting substrate. **Inoguchi et al** in the same field of endeavor teaches a stereoscopic image display apparatus with two dimensional image display switching function wherein a mask pattern that is moved to provide the switching between 2D mode and 3D mode and the mask pattern is formed by patterning light absorbing or reflective materials on a transparent substrate such as glass, (please see column 4, lines 13-18). It would then have been obvious to one skilled in the art to apply the teachings of **Inoguchi et al** to make the light barrier or the filter array explicitly having patterned light absorbing or black material on light transparent substrate for the benefit of providing an explicitly way of making such barriers and for the benefit of making the barrier a separate element from the light source or lamps to create different designs for the arrangement for fitting different application requirements. .

With regard to claims 27-29, Eichenlaub teaches that the three-dimensional mode and two-dimensional mode can be switched by varying the distance between the diffuser and light source or the filter array, (please see Figure 14). This variation in distance or change in positions can be achieved either by *moving the diffuser* (106) from a position against the light source or light emitting device for 3D mode to a position (108) *away* from the light emitting device as shown in Figure 14 for 2D mode, or by moving the light emitting device with the light barriers, (please see column 12 lines 37-46). Eichenlaub

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teaches that the light emitting source is integrally formed with filter array or the light barriers so by moving the light emitting source, the distance between the filter array and the diffuser will be changed. It however does not teach explicitly to move the filter array or the light barriers only. **Inoguchi** et al teaches the mask or the filter array can be formed as separated element from the light emitting device so that the mask or the filter array, formed on a transparent substrate, (please see the explicit demonstration as in Figures 13 and 14), is moved between different positions for switching between the 3D mode (Figure 13) and 2D mode (Figure 14). It would then have been obvious to one skilled in the art to modify the display of Eichenlaub for making the light barriers separated element from the light emitting device or lamps for the benefit of creating more options for facilitating the switching between 3D and 2D modes. Eichenlaub teaches that the diffuser (28, Figure 7) can be placed at light emitting side of the transmissive image display device, (26, Figure 7). With regard to claim 27, the diffuser is supported by a transparent substrate.

With regard to claim 31, Eichenlaub teaches that for 2D mode the distance between the diffuser and the filter array is sufficiently large for the diffusing effect to occur for canceling the light directivity caused by the filter array, and for 3D mode the diffuser is placed against or near the filter array for not canceling the directivity of the light, (please see column 12). Although it does not specify the specific number ranges of the distance, such modifications are considered to be obvious to one skilled in the art since it merely is matters of design choices for fitting the specific size requirement of the display.

With regard to claims 33 and 35, Eichenlaub teaches that the diffuser may be a variable diffuser and different sections of the diffuser can be selected to be either transparent or diffusing in order to create 2D viewing widow within 3D viewing mode, (please see Figure 8 and column 9, lines 23-48).

With regard to claim 36, both **Eichenlaub** and **Inoguchi** teach that the filter array has opaque and transparent segments that form a two dimensional structure, however they do not teach explicitly that the filter array is formed by processed photographic film. However such modification would have been

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obvious to one skilled in the art for the benefit of using alternative means to provide the same opaque and transparent structure.

With regard to claims 38 and 39, **Eichenlaub** teaches that the light barrier or the filter array can be integrally formed with the light emission device but it does not teach explicitly to include a mirror well. **Inoguchi et al** teaches an embodiment wherein the mask pattern (2, Figure 5) is also formed integrally with light emitting device, having reflective structure (10) and reflective opaque segments in the mask, (please see column 7, lines 1-8). These reflective segments and structure serve as certain mirror well. Although it does not teach explicitly to have the perpendicular sides of the mask or filter array be highly reflective, such modification would have been obvious to one skilled in the art since it is based on the same principle of the reflective structure disclosed by Inoguchi et al for making the light generated from the light emission device more efficiently utilized.

With regard to claim 41, **Eichenlaub** teaches the movement is achieved by using solenoid but it does not teach explicitly that it is achieved manually. However it would have been obvious to one skilled in the art to also make the movement manually as an alternative method to achieve the movement for the benefit of make the manufacture less costly.

Contact Information

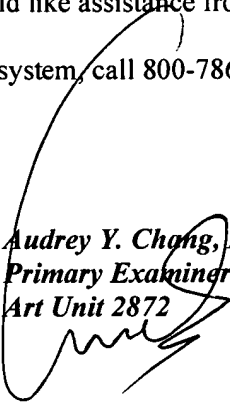
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.